

## An assessment of some infraspecific taxa in *Ptilotus* (Amaranthaceae) from Western Australia

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### Abstract

An assessment of some infraspecific taxa in *Ptilotus* (Amaranthaceae) from Western Australia. *Nuytsia* 21(3): 103–106 (2011). This paper deals with three infraspecific taxa in *Ptilotus* R.Br. that do not warrant recognition: *Ptilotus appendiculatus* Benl var. *minor* Benl, *Ptilotus divaricatus* (Gaudich.) F.Muell. var. *rubescens* Benl and *Ptilotus lanatus* Cunn. ex Moq. var. *glabrobracteatus* Benl.

### Introduction

This paper is a continuation of work begun by Davis (2009) to assess the validity of infraspecific taxa within the genus *Ptilotus* R.Br. in preparation for a *Flora of Australia* treatment of the Amaranthaceae.

Gerhard Benl (1910–2001) was one of the most prolific authors on the genus *Ptilotus* (Benl 1959, 1980, 1983, 1994). However, in the 17 years since Benl (1994) described his last new taxon in *Ptilotus*, there has been a substantial growth in collections, allowing a reappraisal of some of his taxa. Benl's taxonomy was detailed and he attempted to provide a taxonomic rank for many minor variants, even ones represented by only one or very few specimens. Bean (2008) noted that some of Benl's infraspecific taxa have proven of little or no taxonomic value after modern reappraisals.

The purpose of this paper is to reduce to synonymy infraspecific taxa that are now regarded as having no taxonomic merit.

***Ptilotus appendiculatus*** Benl, *Muelleria* 1: 102 (1959). *Type*: Western Australia – Globe Hill Station, Ashburton River, 6 Oct. 1905, A. Morrison 15098 (*holo*: K, image seen; *iso*: E).

*Ptilotus appendiculatus* var. *minor* Benl, *Nuytsia* 4: 267 (1983). *Type*: Boodardee, about 15 miles (24 km) W of Port Hedland, Western Australia, 9 Sept. 1969, S.L. Everist 9195 (*holo*: BRI!).

Benl erected var. *minor* on the basis of a single specimen, which diverged from var. *appendiculatus* in its 'much-branched habit, smaller spikes with narrower flowers and less conspicuous appendages of the outer tepals' (Benl 1983: 267). At the time the distance between the single collection of var. *minor* and the nearest var. *appendiculatus* was c. 350 kilometres. Benl noted that there appeared

to be habitat differences between the two taxa, with var. *minor* occurring on a flood plain and var. *appendiculatus* apparently restricted to 'spinifex [*Triodia*] hills' (Benl 1983: 269). Benl described the ovary as 'almost glabrous' in var. *minor* and 'sparsely pilose at the summit' in var. *appendiculatus*. He also suggested that the two taxa differed in flower colour, noting that Everist (*in sched.*, S.L. Everist 9195) had described the flowers of var. *minor* as 'white to pale ivory coloured' and that in collections of var. *appendiculatus* (e.g. *W.H. Butler s.n.*, 9 Aug. 1963) the tepals were 'tinged pink' (Benl 1983: 269). Despite these apparent differences, Benl noted that some collections of the typical form (e.g. *W.H. Butler s.n.*; *R. Pratt 2/0199*) had a 'branching pattern resembling that of var. *minor*' (Benl 1983: 269); on this basis he described the latter (var. *minor*) at varietal rank.

On examining the wider range of specimens now available at PERTH, branching habit varies continuously from little- to much-branched in *P. appendiculatus*. The type collection of var. *minor* is of a juvenile plant, and the tepals are fractionally smaller than in most specimens (10–10.9 mm long *cf* 11–13.4 mm long). Flower size in *Ptilotus* can be affected by both age of plants and seasonal factors: in drier seasons plants often produce smaller flowers. The outer tepal appendages, although slightly smaller in var. *minor*, are consistent in shape between both taxa.

When var. *minor* was described there was a significant geographical disjunction (*c.* 350 km) between its type locality and the nearest specimens of the typical variety. Since then, further collecting has partially filled the gap, which is now reduced to *c.* 200 kilometres. *Ptilotus appendiculatus* is now known to occur in a variety of habitats throughout the south-west region of the Pilbara including flood plains, colluvial flats and stony hills.

The type of var. *minor* has a glabrous ovary; in specimens of var. *appendiculatus* the ovary ranged from densely pilose to sparsely pilose along the ovary summit, to glabrous. Ovary indumentum is not an adequate discriminating character in *Ptilotus appendiculatus*.

Benl's comments regarding flower colour are problematic for two reasons; firstly, Everist may have been referring to spike colour in his description of var. *minor* while Butler was referring to individual tepals in var. *appendiculatus*. Flowering spikes in *P. appendiculatus* have a lighter overall appearance because of the dense tepal indumentum. The second problem is that individual collector's interpretations of flower colour are likely to vary.

*Selected specimens examined.* WESTERNAUSTRALIA: 11 km S of Mount Delphine, West Hamersley Range, 27 July 1999, *B. Backhouse, D. Edinger & G. Marsh* BEM 151 (PERTH); 6 miles N of Cane River, 9 Aug. 1963, *W.H. Butler s.n.* (PERTH); Barrow Island, 6 Aug. 1973 *W.H. Butler* 178 (PERTH); *c.* 20 km E of Pannawonica, Pilbara, M5-8, Jul. 1999, *P. Ellery s.n.* (PERTH); Bullara turnoff, *c.* 1 mile E of Yanrey Homestead, 29 Aug. 1960, *A.S. George* 1169 (PERTH); near Quarry Hill, *c.* 125 km W of Tom Price, 8 Aug. 1984, *K.R. Newbey* 10799 (CANB, K, PERTH); 60 miles S of Onslow, 11 Sep. 1961, *F. Smith s.n.* (PERTH); 14.5 km SSW of Panawonnica and 300 m W of Jimmawurrada Creek, 13 Aug. 1991, *M.E. Trudgen & S. Maley* MET 10279 (CANB, PERTH, ); North West Coastal Highway, 26 km west of Barradale, 30 Aug. 2003, *J.E. Wajon* 883 (PERTH).

***Ptilotus divaricatus*** (Gaudich.) F.Muell., *Fragm.* 6: 229 (1868). *Trichinium divaricatum* Gaudich. in L. de Freycinet, *Voy. Uranie Bot.* 445 (1829). *Type:* Shark Bay, Western Australia, 1817–1820, *C. Gaudichaud* 71 (*holo:* P, *n.v.*; *iso:* BM, *n.v.*, G, *n.v.*).

*Trichinium striatum* Moq. ex Benth., *Fl. Austral.* 5: 233 (1870); *Ptilotus striatus* (Moq. ex Benth.) F.Muell., *Syst. Census Austral. Pl.* 1: 28 (1882). *Type*: Swan River, Western Australia, 1843, *J. Drummond* 430; Port Gregory [Western Australia], *A.F. Oldfield s.n.*, (*n.v.*); Dirk Hartog Is. [Western Australia], *W.G. Milne s.n.*, (*n.v.*)

*Ptilotus divaricatus* (Gaudich.) F.Muell. var. *rubescens* Benl, *Nuytsia* 3: 169 (1980). *Type*: c. 1 km NE of Bore Camp, Dirk Hartog Island, Western Australia, 6 Sep. 1972, *A.S. George* 11578 (*holo*: PERTH 1555057!; *iso*: CANB).

Benl described *Ptilotus divaricatus* var. *rubescens* on the basis that it diverged from typical *P. divaricatus* in having ‘red flowers’ and ‘the initial development of the inflorescence from cone-shaped, turning ovoid or sub-spherical’ (Benl 1980: 169). In the label notes accompanying the specimen, the collector noted that the flowers were pink and that white-flowering plants (i.e. typical *P. divaricatus*) were not known on Dirk Hartog Island. Further collections lodged in PERTH indicate that in some populations (e.g. *A. Carr* 591) white- and pink-flowering plants grow in mixed stands, with all hues in between. Flower and inflorescence colour is a variable feature in many taxa of *Ptilotus*, both within and between populations. Assessment of a wide range of specimens shows that the development of flowering spikes in *P. divaricatus* is the same between white- and pink-flowering forms.

*Selected specimens examined*. WESTERNAUSTRALIA: between Tamala & Carrarang, 11 Oct. 1973, *J.S. Beard* 6808 (PERTH); Dongara, Irwin River Estuary Nature Walk Trail, Church Street, 17 Oct. 2000, *A. Carr* 566 (PERTH); near the monastery (Benedictine retreat) E side, road to monastery is N side Ocean Drive c. 2 km from town centre, 23 Nov. 2001, *A. Carr* 591 (PERTH); Urchin Point, Dirk Hartog Island, 8 Oct. 1997, *D.J. Edinger* 1250 (PERTH); Cape Range National Park, 8 Aug. 2006, *J. English* 0107 (PERTH); c. 48 km East of Mount Narryer, 14 Oct. 1998, *A.S. George* 17504 (PERTH); East Wallabi Island, Abrolhos Islands, 18 Nov. 1999, *J. Harvey s.n.* (PERTH); Peron Peninsula, 30 Apr. 1996, *G. Liddelow* SB 13 (PERTH); Shark Bay, 5 Oct. 1989, *M.E. Trudgen* 7448 (PERTH).

***Ptilotus lanatus*** Cunn. ex Moq. in A.P. de Candolle, *Prodr.* 13(2): 281 (1849). *Trichinium lanatum* (Cunn. ex Moq.) Druce, *Bot. Soc. Exch. Club Brit. Isles* 1916, 2nd Suppl. 651 (1917), *nom. illeg.*, *non* Lindl. (1838). *Type*: Swan Bay, N.W. Australia, 1835, *A. Cunningham s.n.* (*holo*: K, *n.v.*).

*Trichinium cunninghamii* Benth., *Fl. Austral.* 5: 238 (1870). *Ptilotus cunninghamii* (Benth.) F.Muell., *Pl. NW Australia* 7 (1887), *nom. illeg.* *Type*: Point Cunningham, Cygnet Bay, King Sound [Western Australia], 1822, *A. Cunningham* 153 (*holo*: BM, *n.v.*; *iso*: K, *n.v.*, MEL, *n.v.*).

*Ptilotus lanatus* Cunn. ex Moq. var. *glabrobracteatus* Benl, *Muelleria* 1: 107 (1959) *Type*: near King Sound, Western Australia, 1887, *W.W. Froggat* 15 (*holo*: MEL; *iso*: K, image seen, MEL, NSW).

In describing *Ptilotus lanatus* var. *glabrobracteatus*, Benl (1959) cited differences in the lengths of the bracts and bracteoles between var. *lanatus* (bracts to 2.3 mm long and bracteoles to 1.8 mm long) and var. *glabrobracteatus* (bracts to 3.5 mm long and bracteoles to 2mm long), as well as density of the indumentum on these floral parts. He noted at the time of publication that there were intermediates. On examining current PERTH collections there is an imperceptible gradation of indumentum density. In the specimens examined var. *lanatus* bracts ranged from 1.4–2.5 mm long and bracteoles 1.2–1.8 mm long; and in var. *glabrobracteatus* bracts ranged from 2–2.8 mm long and bracteoles 1.3–2 mm long. This shows a clear overlap of bract and bracteole lengths between the two taxa.

*Selected specimens examined.* WESTERN AUSTRALIA: Derby to Broome road, 20.3 km S (by road) of Derby, 19 Apr. 1985, *T.E.H. Aplin et al.* 76 (CANB, PERTH); 67 km NE of Lagrange Aboriginal Mission turnoff, Great Northern Highway, 1 Sep. 1978, *A.C. Beauglehole & E.G. Errey* B 59158 E 2858 (ACB, CANB, PERTH); One Arm Point, N Dampier Peninsula, Kimberley Coast, 28 Feb. 1989, *B.J. Carter* 356 (DNA, PERTH); 2 km on Beagle Bay Road from Broome, 12 May 1985, *P.R. Foulkes* 234 (PERTH); Broome, 2 May 1944, *C.A. Gardner* 7030 (CANB, PERTH); 5 km N of Point Coulomb, Dampierland, N of Broome, 17 Apr. 1977, *K.F. Kenneally* 5923 (CANB, K, MUN, PERTH); Camballin, May 1970, *Y. Power* 784 (L, PERTH); 66 miles E of Derby on road to Fitzroy Crossing, 10 Mar. 1967, *F. Power* 172 (PERTH) Mount Anderson Station, E of Derby, 3 Apr. 1964, *R.D. Royce* 8143 (CANB, PERTH); Lanlacatta Swamp on Camballin Station, Kimberley, 27 July 1997, *L. Wallis* LW 97A/120 19 Apr. 1985 (CANB, PERTH).

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